

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1.(previously presented) A liftoff method for photolithography, comprising:
  - depositing a single layer of photoresist on a substrate;
  - exposing and developing said photoresist layer thereby forming a photoresist pattern having sidewalls and an upper surface;
  - irradiating said upper surface with an ion beam having a direction parallel to said sidewalls, said ion beam comprising ions whose energy is too low to sputter said layer of photoresist;
  - maintaining said ion beam irradiation for a time period whereby a hardened layer is formed that extends a distance downwards from said upper surface, all remaining photoresist being unhardened;
  - then exposing said photoresist pattern to ozone whereby said sidewalls are eroded and said hardened layer is unchanged so that the hardened layer overhangs the unhardened layer;
  - depositing a layer of a material onto all horizontal surfaces to a thickness that is less than that of said unhardened photoresist layer; and
  - selectively removing said unhardened photoresist layer whereby all of said material that is deposited onto said hardened photoresist layer is lifted off.

2. (original) The liftoff method recited in claim 1 wherein said layer of photoresist is a negative resist or a positive resist.

3. (original) The liftoff method recited in claim 1 wherein said layer of photoresist is deposited to a thickness between about 0.1 and 0.4 microns.

4. (canceled)

5. (original) The liftoff method recited in claim 1 wherein said time period for which said ion beam irradiation is maintained is between about 2 and 20 minutes.

6. (original) The liftoff method recited in claim 1 wherein said distance for which said hardened layer extends downwards is between about 100 and 500 Angstroms.

7. (previously presented) The liftoff method recited in claim 1 wherein the step of exposing said photoresist pattern to ozone further comprises placing the wafers in an ozone chamber, heating them to between 70 and 150 °C at an ozone concentration of between 10 to 200 gm/m<sup>3</sup> at an ozone flow rate of 1 to 100 L/minute for between 1 and 60 minutes.

8. (original) The liftoff method recited in claim 1 wherein said hardened layer overhangs the unhardened layer by between about 0.01 and 0.1 microns on each side.

9. (previously presented) The liftoff method recited in claim 1 wherein the step of selectively removing said unhardened photoresist layer further comprises using N-methyl-2-pyrrolidone at a temperature between 50 and 90 °C for 30 to 60 minutes.

10 – 35. Canceled.